

REMARKS

This application has been carefully reviewed in light of the Office Action mailed October 19, 2005. Claims 1-37 are pending in this patent application. The examiner rejected claims 1-11, 16-23, 28-32 and 35-37 and objected to claims 12-15, 24-27, 33 and 34. Of these, claims 1, 16 and 31 are independent. Applicants respectfully request reconsideration and favorable action in this case.

Allowed Claims

Applicants thank the examiner for the indication that claims 12-15, 24-27 and 33-34 would be allowable if rewritten to be in independent form including all of the limitations of the base claim and any intervening claims.

35 U.S.C. §102 Rejection

Applicants respectfully traverse the rejection of claims 1-10, 31-32 and 35 under 35 U.S.C. 102(e) as anticipated by Eryurek, U.S. Pat. No. 6,370,448 ("Eryurek") and the assertions and determinations therein, for at least the following reasons. Reconsideration is respectfully requested.

Claim 1 recites, in part, "a safety device coupled to each of the first and second transmission paths, wherein the safety device includes a control unit adapted to detect a fault condition associated with the communication bus, and wherein the safety device further includes a switch unit adapted to interrupt the flow of electrical signals along each of the first and second transmission paths in response to the detected fault condition." A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). MPEP 2131. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). MPEP 2131.

In the rejection, the examiner indicates that "software or hardware that is 'able to produce a given result' has inherently switches" and relies on interface circuit 70. Office Action, p. 2. Applicants respectfully submit that a general discussion of an interface circuit 70 "adapted for digital communication on a process control loop" in

the context of a process device 48 (such as a process variable transmitter or a process actuator), used for communication between a processor circuit 66 and a regulator circuit 68, does not “inherently” teach or suggest “a safety device ... wherein the safety device further includes a switch unit adapted to interrupt the flow of electrical signals along each of the first and second transmission paths in response to the detected fault condition” because such a general discussion of circuitry does not teach or suggest these specific elements of claim 1. Eryurek, col. 4, lines 49-51; col. 5, lines 15-16. See Eryurek, col. 4, line 47 – col. 5, line 23. Indeed, neither the cited portions of Eryurek, nor Eryurek generally, teach or suggest any kind of “switch unit adapted to interrupt the flow of electrical signals along each of the first and second transmission paths in response to the detected fault condition.” In fact, the Eryurek disclosure does not contemplate detecting fault conditions or interrupting the flow of electrical signals on a bus. The closest Eryurek comes to discussing a safety device is a general discussion of current limited systems for use in hazardous areas of a plant. Eryurek, col. 3, lines 1–21. However, at no time does Eryurek in any way teach or suggest a “switch unit adapted to interrupt the flow of electrical signals along each of the first and second transmission paths in response to [a] detected fault condition.”

Furthermore, these elements of claim 1 are not inherent in Eryurek because the Eryurek device does not require them, and in fact does not even generally discuss these elements of claim 1. Applicants respectfully request that the examiner provide some reference showing how the cited portions of Eryurek teach or suggest an element which detects fault conditions and an element which interrupts the flow of electrical signals on a bus in response to such a fault detection, or withdraw this rejection. MPEP 2144.03, 2144.03(C).

Because Eryurek does not teach or suggest every element of claim 1, claim 1 is patentable over the cited reference. Therefore, applicants respectfully request allowance of claim 1.

Independent claim 31 is patentable over the cited reference for reasons analogous to those presented above in association with claim 1. Therefore, applicants respectfully request allowance of independent claim 31.

Furthermore, dependent claims 2-15 depend from independent claim 1 and dependent claims 32-37 depend from independent claim 31. Independent claims 1

and 31 have been shown above to be allowable. Thus, dependent claims 2-15 and 32-37 are patentable as depending from an allowable base claim and as including further distinctions over the cited reference. Therefore, applicants respectfully request allowance of dependent claims 2-15 and 32-37.

35 U.S.C. §103 Rejections

Applicants respectfully traverse the rejection of claims 11, 16-23, 28-30 and 36-37 under 35 U.S.C. 103(a) as obvious over Eryurek in view of Christensen et. al., U.S. Pat. No. 6,912,671 ("Christensen") and the assertions and determinations therein, for at least the following reasons. Reconsideration is respectfully requested.

Each of claims 11 and 36-37 includes the recitations of claim 1 or claim 31 discussed above. As indicated above, Eryurek does not disclose or suggest a safety device associated with a communication bus adapted for use in a hazardous environment that detects a fault condition on the bus or that interrupts the flow of electrical signals along a transmission line of the bus in response to the detection of such a fault condition. Furthermore, the examiner has not cited Christensen for this disclosure, nor does Christensen disclose or suggest a safety device of any kind for use with a communication bus in a hazardous environment. As a result, a combination of Eryurek and Christensen does not produce the invention recited by any of claims 11 or 36-37. Furthermore, for the reasons provided below, there is no motivation in the prior art to combine Christensen with Eryurek to produce the invention recited by any of claims 11, 36 or 37. Withdrawal of the rejection of these claims is therefore solicited.

Each of claims 16-23 and 28-30 recites a safety device *adapted for use in a hazardous area of a process plant* including a control unit adapted to detect a fault condition associated with the communication bus and a switch unit adapted to interrupt the flow of electrical signals along a transmission line of the bus in response to the detected fault condition associated with the communication bus. As noted above, Eryurek does not disclose or suggest any type of safety device that detects a fault condition associated with a communication bus or one that interrupts the flow of electrical signals along a transmission line for any reason, much less as a result of a detected fault condition.

Christensen fails to provide the missing disclosure of Eryurek and, in any event, both Christensen and Eryurek fail to provide any motivation for making the claimed combination. In particular, Christensen merely discloses a linking device that connects to a communication bus and that detects a communication failure *at the linking device*. The linking device of Christensen is not a safety device as it is not actually concerned with making the communication bus safe for use in a hazardous environment. Moreover, the Christensen device does not interrupt the flow of electrical signals on the bus, in that the Christensen linking device merely disconnects the bus from communication circuitry within the linking device. See Christensen, Fig. 4A, block 200 and the disclosure associated therewith. Importantly, signals generated by other devices on the communication bus of the Christensen system will still flow on the communication bus of the Christensen system.¹ As a result, no combination of Christensen and Eryurek produces the claimed system, i.e., one that detects a fault on a communication bus and that then interrupts the flow of electrical signals on at least one of the lines or paths of the communication bus, as recited by each of claims 16-23, 28-30.

Still further, neither Christensen nor Eryurek provides any motivation or suggestion to use the fault detection capabilities of Christensen in the Eryurek system. In particular, while the Eryurek device is disclosed as being for use in a hazardous environment, Eryurek does not contemplate making a bus thereof safe for use in a hazardous environment by interrupting signal flow on the bus. To the contrary, the Eryurek system assures that the signals flowing on the bus are intrinsically safe in the first place so that these signals cannot cause a spark when a bus fault occurs. This is the exact opposite of interrupting the signals in response to a fault because the Eryurek system conditions the signals on the bus to assure that the continued flow of the signals in the presence of a fault on the bus does not cause an explosion in the hazardous environment. Because the signals, as placed on the bus of the Eryurek system, cannot cause an explosion in the event of a bus fault, there is simply no need to interrupt these signals to make the bus thereof safe in a hazardous environment. Eryurek certainly provides no motivation for doing so.

¹ The Christensen system is not directed to halting flow of signals on the communication bus but is, instead, directed to disconnecting the bus from the linking device to perform fault analysis.

Additionally, the Christensen device is not disclosed as being able to be used in a hazardous environment, nor is there any reason to believe that the Christensen device, as disclosed, would actually make a bus to which it is attached safe for use in a hazardous environment, as recited by claims 16-23, 28-30. In fact, part of the Christensen disclosure indicates that the linking device thereof actively places voltage signals on the bus 30 after detecting a fault, which could actually cause an explosion if the bus was placed in a hazardous environment. See Christensen, Fig. 4B, block 222 and the disclosure related thereto. Thus, applicants submit that using the Christensen device as disclosed, within the Eryurek system, would not make the Eryurek bus suitable for use in the hazardous environment, but would instead make the Eryurek bus unsafe for use in a hazardous environment. In any event, Christensen makes no suggestion that its system can or should be, in any way, used in a hazardous environment.

It is clear, however, that the prior art must disclose at least a suggestion of, or provide an incentive for the claimed combination of elements in order to establish a *prima facie* case of obviousness. See, *In re Sernaker*, 217 U.S.P.Q. 1 (Fed. Cir. 1983) and *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). Because neither Eryurek nor Christensen provides any motivation or suggestion for using a safety device for detecting a fault condition on a bus in a hazardous environment or for interrupting the flow of electrical signals on that bus in response to the detection of a fault in order to make the bus suitable for use in a hazardous environment, it follows that none of claims 16-23 or 28-30 is rendered obvious by any combination of Eryurek and Christensen.

Conclusion

Applicants have now made an earnest attempt to place this application in condition for immediate allowance. For the foregoing reasons, applicants respectfully request reconsideration and allowance of claims 1-37.

Although applicants believe that no fees are due, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 13-2855 of Marshall, Gerstein & Borun LLP. In addition, if a petition for an extension of time under 37 CFR 1.136(a) is necessary to maintain the pendency of this case and is


not otherwise requested in this case, applicants request that the Commissioner consider this paper to be a request for an appropriate extension of time and hereby authorize the Commissioner to charge the fee as set forth in 37 CFR 1.17(a) corresponding to the needed extension of time to Deposit Account No. 13-2855 of Marshall, Gerstein & Borun LLP.

If there are matters that can be discussed by telephone to further the prosecution of this application, applicants respectfully request that the examiner call its attorney at the number listed below.

Respectfully submitted,

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